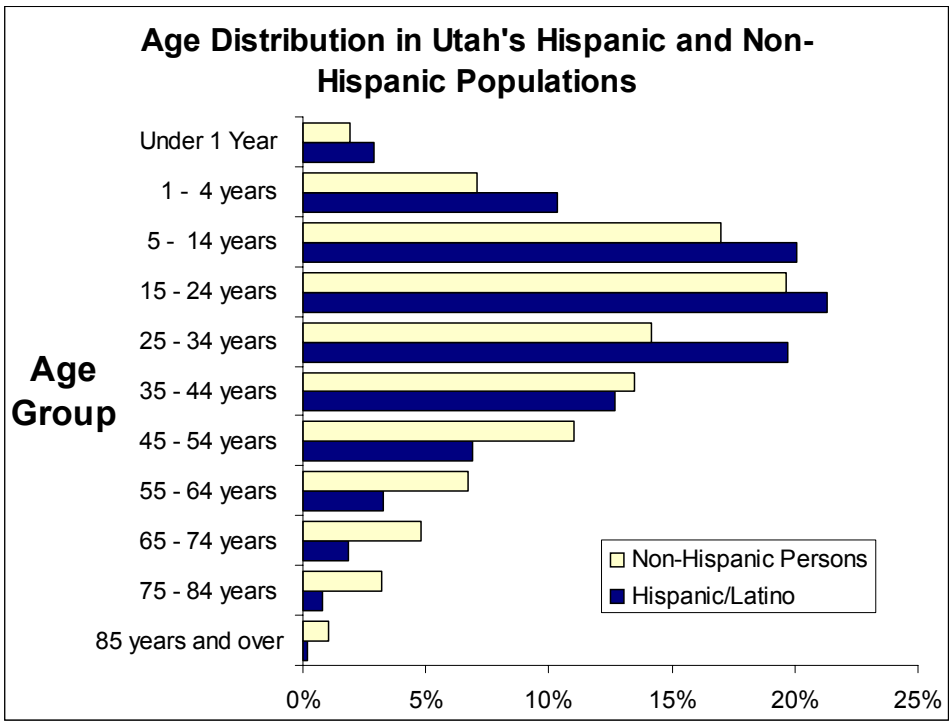
Appendix E: Age-adjusted Rates

In Appendix D, rates were calculated for coronary heart disease deaths by race and ethnicity. The rates that were calculated are known as "crude" rates because they have not been adjusted in any way. However, a crude rate can be misleading if you want to compare populations that differ in age because the crude rate for most causes of death will be higher in populations with a larger proportion of elderly individuals. For example, Utah's Hispanic/Latino population is younger than the non-Hispanic or Latino population—it has higher proportions of young persons and lower proportions of elderly persons.

Age Distributions for Utah's Hispanic/Latino and Non-Hispanic Populations

	Population Counts		Percentage Distributions	
	Hispanic/ Latino Persons	Non-Hispanic Persons	Hispanic/ Latino Persons	Non-Hispanic Persons
Under 1 Year	5,866	38,739	2.9%	1.9%
1 - 4 years	20,895	143,878	10.4%	7.1%
5 - 14 years	40,439	344,882	20.1%	17.0%
15 - 24 years	42,919	398,511	21.3%	19.6%
25 - 34 years	39,674	287,390	19.7%	14.1%
35 - 44 years	25,510	274,026	12.7%	13.5%
45 - 54 years	13,885	223,825	6.9%	11.0%
55 - 64 years	6,610	135,898	3.3%	6.7%
65 - 74 years	3,695	97,853	1.8%	4.8%
75 - 84 years	1,646	65,277	0.8%	3.2%
85 years +	420	21,331	0.2%	1.0%
	201,559	2,031,610	100.0%	100.0%



Appendix E: Age-adjusted Rates

The following table presents lung cancer incidence rates for Hispanic/Latino and White, non-Hispanic persons. Notice that within the Hispanic/Latino population, the age-specific incidence rates are higher for almost every age group, but the crude rate is lower. The crude rate is lower in the Hispanic/Latino group because there were fewer older persons, and many more younger persons, where the incidence rate is low.

Lung Cancer: Age-specific and Crude Incidence Rates per 100,000 Persons

	Hispanic/ Latino	White, Non-Hisp
Age-Specific Rates:		
Under 1 year	0	0
1 - 4 years	0	0.7
5 - 14 years	0	0
15 - 24 years	2.3	0.3
25 - 34 years	2.5	3.3
35 - 44 years	3.9	17.7
45 - 54 years	50.4	89.2
55 - 64 years	438.7	354.6
65 - 74 years	947.2	817.1
75 - 84 years	1701.1	959.5
85 years +	952.4	582.3
Crude Rate, All Ages	10.5	23.1

In this report, we wish to present data on race and ethnic disparities, so we'd like to adjust the data for the different age distributions. The "age-adjusted" rate applies the same population age distribution to the age-specific death rates from both populations. The convention we use in public health for doing this is the year 2000 U.S. population estimates for the eleven age groups listed.

	U.S. 2000 Standard Pop. Distribution	Hispanic/Latino	White, Non-Hispanic
Under 1 Year	1.3818%	0	0
1 - 4 years	5.5317%	0	0.7
5 - 14 years	14.5565%	0	0
15 - 24 years	13.8646%	2.3	0.3
25 - 34 years	13.5573%	2.5	3.3
35 - 44 years	16.2613%	3.9	17.7
45 - 54 years	13.4834%	50.4	89.2
55 - 64 years	8.7247%	438.7	354.6
65 - 74 years	6.6037%	947.2	817.1
75 - 84 years	4.4842%	1701.1	959.5
85 years +	1.5508%	952.4	582.3
Age-adjusted Rates		40.0	30.5

Appendix E: Age-adjusted Rates

The age-adjusted rate for lung cancer incidence shows that the problem is worse in the Hispanic/ Latino population after controlling for age differences.

Most data tables in this report include three indications of the size of the problem: the number of events, the crude rate and the age adjusted rate. Which one should be used? It depends on what question you are asking.

Question: How many people died?
Measure: Number of events

Question: What is the underlying risk in my population?
Measure: Crude rate

Question: Is there a health status disparity between groups?
Measure: Age-adjusted rates